

ABSTRACT OF THE DISCLOSURE

Variable modulation within combined LDPC (Low Density Parity Check) coding and modulation coding systems. A novel approach is presented for variable modulation encoding of LDPC coded symbols. In addition, LDPC encoding, that generates an LDPC variable code rate signal, may also be performed as well. The encoding can generate an LDPC variable code rate and/or modulation signal whose code rate and/or modulation may vary as frequently as on a symbol by symbol basis. Some embodiments employ a common constellation shape for all of the symbols of the signal sequence, yet individual symbols may be mapped according different mappings of the commonly shaped constellation; such an embodiment may be viewed as generating a LDPC variable mapped signal. In general, any one or more of the code rate, constellation shape, or mapping of the individual symbols of a signal sequence may vary as frequently as on a symbol by symbol basis.